CLAIMS

1. A continuously variable ratio transmission assembly ("variator") comprising a roller which transmits drive between a pair of races, the roller being movable in accordance with changes in variator ratio, a hydraulic actuator which applies a biasing force to the roller, at least one valve connected to the actuator through a hydraulic line to control pressure applied to the actuator and so to control the biasing force, and an electronic control which determines the required biasing force and sets the valve accordingly, characterised in that the valve setting is additionally dependent upon a rate of flow in the hydraulic line.

2. A continuously variable ratio transmission assembly as claimed in claim 1 wherein the control electronics serve to determine the rate of flow in the hydraulic line, to determine a consequent pressure change between the actuator and the valve, and to adjust the valve setting to compensate for the pressure change.

3. A continuously variable ratio transmission assembly as claimed in claim 2 wherein the electronic control calculates the pressure change from the rate of flow and the characteristics of one or more components of the hydraulic line.

4. A continuously variable ratio transmission assembly as claimed in claim 3 wherein the component characteristics are modelled in the electronic control.

5. A continuously variable ratio transmission assembly as claimed in any preceding claim wherein the electronic control determines the rate of flow from variator ratio and rate of change of variator ratio.

6. A continuously variable ratio transmission assembly as claimed in any of claims 2 to 5 wherein, in calculating the rate of flow, the electronic control takes account of predicted values of engine speed and engine acceleration.

7. A continuously variable ratio transmission assembly as claimed in claim 6 wherein the hydraulic line incorporates at least one component serving to create a pressure change in response to flow and thereby to damp oscillation of the variator roller, wherein by virtue of the compensation to the valve setting based upon predicted engine acceleration the effect of the valve and the component together is to damp deviations of roller position from those corresponding to the predicted engine acceleration.

8. A continuously variable ratio transmission assembly as claimed in any preceding claim wherein, in calculating the rate of flow, the electronic control takes account of vehicle speed and vehicle acceleration.

9. A continuously variable ratio transmission assembly as claimed in claim 8 wherein, in determining the value of vehicle acceleration used in calculating the rate of flow, the control electronics take account of net force applied to drive the vehicle.

10. A continuously variable ratio transmission assembly as claimed in claim 9 wherein net force applied to drive the vehicle is used to obtain a first vehicle acceleration signal which is high pass filtered, measurement of vehicle speed or acceleration is used to obtain a second vehicle acceleration signal which is low pass filtered, and the first and second signals are then added together to provide an improved vehicle acceleration signal used in calculating the rate of flow.

11. A continuously variable ratio transmission assembly as claimed in any of claims 8 to 10 wherein a measured vehicle speed signal is low pass filtered and an offset is added to the filtered signal to compensate for time lag caused by the filtering.

12. A continuously variable ratio transmission assembly as claimed in claim 11 wherein the offset is calculated by multiplying the differential of the filtered signal by a time constant.

13. A continuously variable ratio transmission assembly as claimed in any preceding claim wherein the valve is a pressure reducing valve which receives high pressure fluid and applies a fluid pressure to the hydraulic line, the fluid pressure corresponding to the valve setting.

14. A continuously variable ratio transmission assembly as claimed in any preceding comprising two hydraulic lines each with a respective valve for control of pressure, the hydraulic lines being led to opposite sides of a piston in the actuator so that the biasing force depends upon a difference in pressures from the two lines.